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Reviews of Foreign Literature.

A Flora of the Northeast of Ireland. By S. A. Stewart and T. H. Corry. 8vo, p. 331. Published by the Belfast Naturalists Field Club, 1888.

Local floras are always of interest, and when done with the thoroughness of the one here noticed, are of much value and importance. The present one follows the usual custom of giving full and accurate stations for all plants of uncommon occurrence, in the counties of Down, Antrim and Derry, including the Bryophytes. It demands more than casual attention from the fact that the authors have adopted a rational system of nomenclature, not carried out with the thoroughness that we could wish, but still a great improvement on most works of the kind. We can not do better than cite a few sentences from their preface: "As to nomenclature, the rule of priority has been observed, and wherever it required the substitution of a less known name, this has been done. * * * Further, there has been an attempt made here to retain in all cases as authority for the species, the name of its earliest describer." After the general run of local floras it is really quite refreshing to read *Habenaria viridis* (L.), Brown, *Rhynchospora alba* (L.), Vahl., and the like. The most numerous changes of name are made in the Bryophytes, many of them applying to species of American distribution, such as *Hepatica conica* (L.), Lindb. for *Fegatella conica*, Micheli's genus *Hepatica* having priority both of *Fegatella* and of the anthophyte genus of the same orthography, now sunk in *Anemone*, where we hope it will be allowed to remain. N. L. B.

The Origin of Floral Structures. By the Rev. George Henslow. Pp. xix, 349. Eighty-eight illustrations.

The acute Professor of Botany at Queen's College has given us, in this latest volume of the International Scientific Series, a forcible presentation of the theory that plants altogether tend to repeat their parents and vary, as a rule, only in response to external stimuli. In Darwin's view the two innate principles of heredity and variation are constantly at war: spontaneous and apparently purposeless changes continually tend to occur: the new forms survive or perish, by "natural selection," according as they are or are not in sympathy with the environment. In Prof. Henslow's view heredity entirely prevails, and it is the "environment" that directly inspires whatever variations may occur. In a general way this is obviously true. The "environment" that gardeners supply has wrought a multitude of variations in cultivated plants, while in nature, under extreme conditions of heat and cold, dryness and moisture, fertility and sterility, the offspring of a single plant may easily, in one generation, vary almost beyond recognition. For a single instance, how often have merely "depauperate" forms been reckoned as distinct varieties, or even species! But is the "environment" potent enough to have evolved the existing multitude of floral forms, ranging from the simple flowers of *Ranunculus* to the highly complicated ones of *Orchis* and *Asclepias?* Prof. Henslow answers with a bold affirmative. While conceding that "to some extent the attempt must be regarded as speculative," he aims "to refer every part of the structure of flowers to some one or more definite causes arising from the environment taken in its widest sense" (p. xi.). No originality is claimed for this view. The author's avowed object is to go back to 1795 and revive Geoffroy St. Hilaire's "conditions of life" (*monde ambiant*) as the "primal cause of change."

Of all the factors concerned in floral development Prof. Henslow reckons insects as by far the most active and influential. Protoplasm promptly responds to the stimulus of mechanical irritation, especially in such sensitive tissues as those of flowers. The punctures and pressures and thrusts and tensions of insects, repeated and continued through succeeding generations, are held to have developed nectaries, produced hairs, enlarged petals, lengthened stamens, and otherwise modified floral organs in an endless variety of ways. In "galls" and similar morbid plant-growths we have constant evidence of the effect of insect irritation in stimulating and diverting the action of protoplasm. The fasciated leaves common in *Solidago* furnish another striking example. Still more notable are the "leaf-cones" of some species of *Salix*, "probably occasioned by the puncture of insects" (Gray, Manual, p. 462.) The present writer has repeatedly opened these cones without being able to find any larva or other indication of insect agency. It is possible that we have here a result of insect action becoming hereditary. If so, these cones would furnish an additional and excellent proof of the principle which Prof. Henslow supports by an abundance of ingenious argument and illustration.

A specially interesting part of the book is the author's summary of his reasons for rejecting the famous Darwinian theory embodied in the aphorism, "Nature abhors close fertilization." He concludes that the benefits of cross-fertilization are comparatively transient, and that naturally self-fertilized plants are, upon the whole, more successful in the struggle for life than those with ingenious appliances for heterogamy. Not a little force is added to Prof. Henslow's controversion of some of Darwin's most important doctrines by his quotations from the great naturalist's later writings, showing that the trend of the latter's views, near the close of his life, was directly towards the conclusions here reached.

E. E. S.

Index to Recent American Botanical Literature.

Arctic Plants growing in New Brunswick, with notes on their Distribution. James Fowler. (Trans. Roy. Soc. Canada, v., (1887), 189-205.)

Prof. Fowler demonstrates the remarkable fact, that of 257 native arctic plants in New Brunswick, 241 are natives of Arctic Europe, and in particular of Scandinavia and Lapland, while but 167 are indigenous to Arctic East America. He accounts for this distribution by climatal and regional similarities. The old theory is maintained that a homogeneous arctic flora covered the polar regions before the Glacial Epoch, and on the advent of the cold and ice was driven southward on both continents; that on the recession of the glaciers this flora, decimated and considerably modified, crept back until it reached its present condition, local differences being due mainly to climatal causes. It is a very pretty theory and one could desire no better explanation of the present state of arctic vegetation, if we only knew that its premises were correct. Unfortunately we do not know this, but instead, the researches of Heer have shown that in late Tertiary time the arctic flora was almost tropical in character, and no in-